

Index

Symbols

2-state Markov chain 2, 5-6

4-state Markov chain 2, 6-7, 16-17

A

Abnormal Frequency Supervision Mechanism (AFSM) 182, 193, 195-196, 202, 206

Access Node (AN) 1-4, 6-7, 9-12, 19, 24-27, 30, 34-35, 40-41, 43-50, 52-54, 56-59, 61-62, 64-69, 71, 73, 77, 79, 81-85, 87-94, 96-100, 102, 104-106, 108-109, 111-115, 117-118, 120-121, 123-126, 128-129, 131-132, 134, 136-139, 142-147, 153-154, 156, 160-166, 170-171, 173, 178-180, 182-198, 200-201, 206-208, 212, 214-222, 224, 226, 228, 230-236, 238-240, 242-246, 249-252, 256-265, 267-269, 271-272, 275-287, 289-292, 294-296, 300-305, 307-312, 314-319, 322-323, 325-327, 329-330, 332, 334-335, 337-347, 350-355, 357-358, 360, 363-366, 368-380, 382-383, 391-395, 397-399

Active Optical Networks (AON) 46, 60

additive increase - multiplicative decrease property (AIMD) 25

Advanced Research Project Agency Network (ARPANET) 78

Aneka Federation 395-397, 399

application profile 114

authentication 130, 183-184, 188, 190, 196-197, 200-201, 204, 207, 210-228, 302-303, 338, 354-359, 390-392, 397

B

beacon frame 142, 145

binding rules 114-115, 122, 128

bioinformatics 24

bottlenecks 23, 25-26, 28, 37, 90-92, 103, 110, 304

bounded metric 94-95, 104-105

BubbleCast 282-283

BubbleStorm 282-283, 288

buffer size 3, 24-25, 27-28, 37

building energy management 273

building management framework 258-259, 262, 268, 271, 273

C

centralized execution 123

centralized network management paradigm 295, 313

channel fading 49, 53, 56-58, 63

circuitous 77-78

client side composition 122

cloud computing 314-315, 329-330, 363-368, 372, 379-385, 398-399

cluster key 188-191, 198-199, 201

coarse synchronization 102

cognitive service provision 112, 114-115, 117-118, 120-122, 124, 126, 129-130, 132, 135, 137

collection protocols 273

computational fluid dynamics 24

congestion 2, 5, 22, 24-25, 27-28, 35, 38, 43, 49, 51, 53, 56-59, 63, 77, 84, 109, 111, 152, 160, 370

constant metric 93

Constraint-Based Geolocation (CBG) 80, 82

content-based search 275

continuous self-similarity 9

convergent networks 2, 4

covering rule 95

cross-traffic 92, 95-96, 100, 102, 106

D

data change rate 181

data dissemination 182, 262, 273

data frame 142, 145-146, 194

data transfer path 26

decentralization 386-387, 399
 decision making process 113
 detectability 93
 digital tv technology 40
 discrete self-similarity 9
 distributed computing 38-39, 64, 83, 85, 109-110,
 160, 180, 207, 253, 287, 290, 293, 295, 311,
 314-316, 319-323, 325, 329, 366, 381-382,
 386-387, 392, 398-399
 distributed network management paradigms 313
 distributed systems 39, 69, 109, 179-181, 227, 287,
 290, 316, 320-321, 364-365, 370, 381, 386-
 387, 390, 392-393, 397-399
 DoS attack 186, 192, 194, 196, 200, 220
 drain 142-143, 146-151, 153-155

E

end-to-end delay 142-143, 148, 151-155
 energy equilibrium 159, 161-162, 170-173, 178-
 179, 181
 energy model 165
 Ethernet Virtual Connections (EVCs) 45
 exceptional message supervision mechanism
 (EMSM) 182, 193, 195-196, 202, 206
 execution process 113

F

flooding attack 211, 222
 forwarding 122, 147, 159, 170-175, 183, 186, 192-
 194, 196, 200, 202, 210, 277, 279, 338, 392
 frame copy 50-51
 Full Function Devices (FFD) 144-145
 fusion model 165, 169

G

generic cognitive cycle model 113
 GeoCluster 79
 geolocation 64-69, 71-73, 76, 78-85, 253
 geolocation accuracy 68, 81-82, 84
 geolocation approaches 64, 66, 68, 72-73, 78, 83
 GeoPing 79-80
 GeoTrack 79
 GeoWeight 81, 84
 Global Positioning System (GPS) 79, 231, 256-257
 grid computing 37-39, 110, 308-310, 314-315, 329-
 330, 399
 GridFTP 24, 26-29, 31-32, 36-37
 group-based request 273
 grouping rule 95, 105

H

hello flood attack 192, 194, 202
 heterogeneity 77, 291, 321, 325, 367, 388
 Hierarchical Wireless Sensor Network (HWSN)
 209
 high energy physics 106
 high-speed data transfer 23
 Home Subscriber Service (HSS) 130-132, 134, 337-
 338, 355
 Hurst Parameter (H) 1, 3, 10-11, 13, 17-18, 20-22,
 37-39, 42-43, 59-62, 83, 85, 97, 110-111, 138-
 140, 155, 157, 173, 179-181, 194, 207-209,
 214, 216, 227-228, 232, 253-257, 277, 287,
 311-312, 329-330, 335, 361, 377, 382-384, 398
 hybrid publish 283

I

IEEE 802.15.4 standard 142-146, 148, 150-151,
 155-157
 indexing 277, 279, 284-285, 287, 293, 297, 395,
 397
 indoor sensor networks 230-231, 240, 253, 255, 257
 initial key 188-190
 in-node signal processing 266, 273
 institutional grid 86, 111
 Inter-departure Time 4
 Intergrated Services 3
 Internet Control Message Protocol (ICMP) 67-69,
 83
 internet latency measurements 66, 68, 81
 Internet Protocol-based television (IPTV) 40-50,
 52-53, 55-63
 Internet Service Provider (ISP) 10, 67, 87
 Interrogating CSCF (I-CSCF) 131
 inverse problem 87-88, 111
 iPlane 72-77, 85
 IP Multimedia Subsystem (IMS) 112, 114, 117,
 128-135, 137-140
 IP networks 1-4, 6-7, 11-12, 19, 22, 41, 311, 354
 IP tabulation 79
 IP traffic nature 1, 3, 8, 19
 IPTV backbone technologies 44
 IP-VoD services 42
 IP-Whois 82

J

Jitter 1-4, 7-13, 15-20, 22, 43-44, 48
 JXTA 294, 297, 301, 303, 310-311, 313, 391, 397-
 398

K

key management 188, 207-208, 210-211, 355, 390

L

Label Switched Paths (LSPs) 45

Label Switch Routers (LSRs) 45

latency model 68, 84

localization 65, 79-80, 179, 191, 196, 202, 206,
230-233, 235, 237, 240-242, 245-257

localized delay 77

Long Range Dependencies (LRD) 1-2, 8, 13, 15-16,
19-20

loss rate 1-3, 14-18, 22, 27-28, 34-35, 142, 151,
153, 155

M

MAC frame 145-146, 222

MAC layer 62, 143, 215, 219, 222, 227, 334, 347

MAFT 159, 162, 170-171, 173-178

master key 188-190, 199

Maximum Likelihood Estimation (MLE) 81

Maximum Transmission Unit (MTU) 25

measurement-based geolocation 64, 66-67, 71, 73,
76, 78, 81, 84

Media Access Control (MAC) 144

Media Gateway Controller Function (MGCF) 131

Message Authentication Code (MAC) 190, 210

metric 4, 82, 88-95, 104-106, 108-109, 111, 151,
153, 164, 192, 341

Metric Induced Topology-Construction, Analysis
and Retrieval (MINTCar) 86, 88, 90-91, 96,
106, 108

mobile node 148, 230-232, 242, 246-247, 249-253,
256-257

model properties 94

monitoring process 113, 128, 155

Motion and Residual Up-Sampling (MRU) 50-51

multi-attribute data fusion 162, 165, 168, 178-179

multi-attribute fusion tree 159, 162, 170-171, 178

multicasting 40-41, 49, 52-53, 56-57, 59

multi-dimensionality 286

Multimedia Resource Function Controller (MRFC)
131

multiple source multiple destination 86, 89, 92, 109

multiple VA instances 285

Multi-Service Access Nodes (MSAN) 46

N

negentropy 97-100, 102, 104, 108, 111

Network Address Translator (NAT) 67, 78

Network Interface Card (NIC) 24-26, 28, 37

network key 188-189, 191, 199

network management 112, 114, 130, 135-137, 289-
292, 294-296, 301, 305, 309-313, 323, 331, 382

network periodic polling 313

network services 44, 291, 293, 299, 312, 314, 319-
323, 325-327, 329-330

network tomography 86-88, 91, 108-111

network virtualization 314, 316, 318-321, 323,
329-330

non-gaussian distribution 100

numerical relativity 24

O

One Way Delay (OWD) 1-4

Optical Carrier (OC) 45

Optical Line Termination (OLT) 46, 52-54, 63

Optical Network Terminals (ONTs) 46, 52, 54, 59,
63

Outlier Detection and Countermeasure Scheme
(ODCS) 182, 184, 193, 197, 201-204, 206

outliers 182-187, 191-192, 195-197, 199-204, 206-
208, 210

P

Packet Loss Rate (PLR) 1-3, 5-6, 15-20

pairwise key 189-190, 228

PAN coordinator 144-145

parallel streams 23-25, 27-29, 31-32, 34, 37-39, 344

Passive Optical Network (PON) 44, 46, 52-54, 59-
60, 63

Peer-to-Peer Computing 311, 399

peer-to-peer networks 139-140, 276, 287

peer-to-peer (P2P) 62-63, 122, 138, 275-279, 283,
286-301, 303, 310-313, 380, 387, 390, 392,
395-397, 399

Peer-to-Peer system 390

peer-to-peer topology 145

Personal Area Network (PAN) 144-145, 150, 256
ping dataset 72

PlanetLab 69-70, 72-77, 85, 318

power awareness 211, 213, 219, 222

Power-Efficient Gathering in Sensor Information
Systems (PEGASIS) 164

Prize Collecting Data Fusion (PCDF) 163

proactive composition 122

probe 80, 86, 91-92, 95, 101-102, 105, 111
 probing techniques 87, 90, 94, 106, 108
 provocateur attack 192, 198, 202
 Proxy Call Session Control Functions (P-CSCF) 130
 Pub-2-Sub 283-286
 public key cryptography 211-212, 227
 Public Switched Telephone Network (PSTN) 2, 337

Q

QoS mechanisms 2-4, 20, 334
 QoS provisioning 319, 325, 334, 363-365, 367-368, 370, 373, 380-381
 Quality of Service (QoS) 1-4, 7, 10, 12, 19-22, 40-41, 43, 49, 56, 59, 61, 117, 140, 157, 294, 308-309, 315, 319, 322-325, 331, 333-335, 338, 360, 363-373, 379-381, 389, 394

R

reactive composition 123-125
 Real Time Transport Protocol 4, 11, 21-22, 47, 59, 129, 139
 reconstruction algorithms 87, 91-92
 Reduced Function Devices (RDF) 116
 reference node 230-232, 239-244, 248-250, 252, 255-257
 repository-based geolocation 66, 85
 Reservation Resource Protocol (RSVP) 3
 resource allocation 65, 325, 363, 365, 369, 371-373, 381, 387-389, 392, 394, 396, 398
 RNST algorithm 231, 241-242, 246-253, 257
 routing load 146, 151-154
 routing overhead 142, 151-152, 155
 routing scheme 142, 146-149, 162

S

scalability and reliability 68, 386
 Scalable Video Coding (SVC) 50, 53, 60, 63
 second-order discrete self-similarity 9
 selective forwarding attack 192-194, 196
 self-adaptive threshold 159, 165, 167, 178
 server side composition 122
 service broker 314, 316-317, 323-325, 327, 329
 service composition 112, 122-124, 126-128, 132-134, 138-140, 298, 300, 308, 317-318
 service description 117, 314, 316-317, 322-330
 service discovery 112, 114-119, 121-124, 128, 132, 134, 136, 138-140, 317, 322-325, 372

service level agreements 323, 363, 390
 service management 112, 114, 130, 132, 134-135, 137, 324
 Service-Oriented Architecture (SOA) 314, 316-323, 325, 327, 329, 366, 371
 service-oriented networking 314, 316, 319-320, 324
 service profile 114-115, 118, 131-132, 134
 service publishing 114, 118, 120
 Serving CSCF (S-CSCF) 131-135
 Simple Object Access Protocol (SOAP) 117, 140, 318, 330
 single source multiple destination 89, 91
 sink-hole attack 192, 194, 196, 200
 software component profile 114
 sorting rule 95, 104
 star topology 144-145
 striped transfers 23
 SW component 114-115, 120, 127
 Synchronous Digital Hierarchy (SDH) 44-45
 Synchronous Optical Network (SONET) 44-45

T

TDnetwork 25
 throughput optimization 23, 39
 time-critical 142-143, 150, 154-155
 TinyDB 164, 180, 262-263, 272
 Tnetwork 25
 Topology-Based Geolocation (TBG) 80
 traceroute dataset 71
 Transmission Control Protocol (TCP) 4, 24-25, 28, 37-39, 47, 67, 78-79, 93, 351
 transport layer protocols 24
 tree topology 145
 Triangle Inequality Violations (TIV) 73, 76-77

U

unicasting 49, 55-56, 59
 Universal Description, Discovery and Integration protocol (UDDI) 116-117, 140, 318, 322, 330
 unlabeled topology 88-89

V

video coding 40, 43, 48, 50-51, 53, 56, 58-60, 62-63
 Video on Demand (VoD) 40, 43, 49, 56, 61, 63
 virtualization 284-285, 314, 316, 318-321, 323, 329-330, 372, 395

Index

Voice over Internet Protocol (VoIP) 1-5, 7-10, 12-22, 42-43, 47, 84, 351

W

Web Services Definition Language (WSDL) 117, 140, 317, 322-323, 330

WiMAX networks 53, 58

wireless building sensor networks 273

Wireless Sensor Networks (WSN) 143-144, 148, 151, 153, 155-156, 159-168, 170, 173, 178-179, 183-185, 187-188, 190-194, 196, 198-199, 202, 212-215, 226-227, 231, 243, 255-256, 259-261, 271

ZigBee 143-145, 156, 231, 246, 248, 271